The Monitor

The Newsletter of the ETV Advanced Monitoring Systems (AMS) Center

Volume 6, Number 10 October 2003

Ten More Technologies Verified by AMS Center

Five portable analyzers for detecting arsenic in water and five mercury continuous emission monitors (CEMs) have completed verification tests conducted by the Advanced Monitoring Systems (AMS) Center, which is managed by Battelle in partnership with the U.S. EPA's Environmental Technology Verification Program. Results of the tests are available in reports and verification statements on the ETV Web site at http://www.epa.gov/etv. The 10 instruments bring the total number of technologies verified under the ETV Program to 240.

Portable Arsenic Analyzers

Portable arsenic analyzers are designed to collect data on the content of arsenic in water sources. Arsenic occurs naturally in the earth's crust and is released during the erosion of rocks, minerals, or soil. People can be exposed to arsenic by drinking water released during the erosion process or from industrial processes. Studies show that long-term exposure to arsenic in drinking water can cause a variety of cancers in humans, which emphasizes the importance of using arsenic analyzers.

The Safe Drinking Water Act required EPA to revise the limit for arsenic in drinking water (50 parts per billion [ppb]). In January 2001, EPA adopted a new arsenic standard—10 ppb—to which public water systems must comply by January 23, 2006.

The five analyzers tested are pictured in the right-hand column, along with contact information. Two types of portable arsenic analyzers have been verified. The PDV 6000 has a small analytical cell assembly and hand-held controller that work together as a portable analyzer for field screening for specific heavy metals. The other four arsenic test kits are inexpensive,

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Portable Arsenic Analyzers

Technology: PDV 6000, with VAS Version 2.1 Software
Company: Monitoring Technologies Int., PTY, LTD.
Address: 10 Main St., Osborne Park, Perth, Western Australia 6017
Phone: +618-9444-3377
Fax: +618-9444-2877
Web Site: http://www.monitoring-technologies.com
E-mail: info@mti.com.au.

Technology: Quick™ II
Company: Industrial Test Systems, Inc.*
Address: 1875 Langston Street, Rock Hill, SC 29730
Phone: 803-329-9712
Fax: 803-329-9743
Web Site: http://www.sensafe.com
E-mail: its@cetlink.net

Technology: Quick™ Low Range
See above for all information.

Technology: Quick™ Low Range II
See above for all information.

Technology: Quick™ Ultra Low II
See above for all information.

The AMS Center, which is part of the U.S. Environmental Protection Agency's Environmental Technology Verification Program, verifies the performance of technologies that monitor for contaminants and natural species in air, water, and soil. ETV was established to accelerate the implementation of improved environmental technologies through third-party verification testing and reporting of the technologies' performance. The ETV process provides purchasers and permitters with an independent assessment of the technology they are buying or permitting and facilitates multi-state acceptance. For further information, contact Helen Latham at Battelle, 505 King Ave., Columbus, Ohio 43201-2693; Phone 614-424-4062; Fax 614-424-5601; E-mail lathamh@battelle.org.

10 Technologies

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portable, and rapid devices that can detect varying ranges of arsenic in water—4 ppb, 10 ppb, 15 ppb, and 20 ppb. The analyzers were tested for accuracy, precision, linearity, method detection limit, matrix interference effects, operator bias, inter-unit reproducibility, and the rate of false positives or negatives.

Mercury CEMs

Five mercury CEMs participated in a second round of testing for this technology category. The purpose of the verification test was to evaluate the performance of the mercury CEMs at a full-scale field location during a substantial duration of continuous operation.

Mercury is a contaminant named in the U.S. Hazardous Waste Combustor Maximum Achievable Control Technology rule, which went into effect in l999. Monitoring methods for mercury vapors are required to ensure that mercury is not being released, particularly from processes operating at elevated temperatures.

These CEMs are designed to provide continuous measurement of mercury (Hg) in stack gases and were challenged by stack gases generated from the thermal treatment of a variety of actual wastes at a Toxic Substances Control Act Incinerator. Mercury standard gases were used to challenge the CEMs to assess stability in long-term operation.

The instruments were operated for several weeks by staff at the test site to assess their operational aspects. The responses of the CEMs were compared to the reference mercury measurements of total, oxidized, and elemental mercury.

The instruments were tested for relative accuracy, correlation with reference method results, precision, sampling system bias, relative calibration and zero drift, response time, data completeness, and operational factors.

NOTE: The November issue will feature the Homeland Security Technology Field Day.

Mercury CEMs

Technology: Argus-HG 1000
Company: Envimetrics
Address: P.O. 6
Pluckemin, NJ 07078
Phone: 609-243-3212
Fax: 908-781-1607
Web Site: www.envimetrics. com
E-mail: Eeius@mindspring.com

Technology: MS-1/DM-5
Company: Nippon Instruments Corp.
Address: 14-8, Akaoji, Takatsuki-shi
Osaka, 569-1146, Japan
Phone: +81-726-94-5195
Fax: +81-726-94-0663
Web Site: http://smglink.com/nic/
E-mail: nic@rigaku.co.jp

Technology: DM-6D/DM-6P
See above for all information.

Technology: Hg-200
Company: Opsis AB
Address: Box 244, SE-244 02
Furulund, Sweden
Phone: +46 46 72 25 00, 73 85 10
Fax: +46 46 72 25 01, 73 83 70
Web Site: www.environmental-center.com/technology/opsis.com
E-mail: carl.kamme@opsis.se

Technology: Sir Galahad II
Company: PS Analytical, Ltd.
Address: Arthur House, Crayfields Industrial Estate, Main Road, Orpington, Kent BR5 3HP, England
Phone: +44 (0) 1689 891211
Fax: +44 (0) 1689 896009
Web Site: http://www.psanalytical.com
E-mail: wtc@psanalytical.com